Predictors of Walking impairment in Patients With Claudication Using Linear & Non-Linear Models

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Résumé en anglais	Objective: To identify new variables associated to maximal walking time on treadmill (MWT) in patients with claudication. Material: We retrospectively analysed data of 1120 patients referred for transcutaneous exercise oxymetry (TcpO2). Methods: The outcome measurement was the absolute walking time (MWT) on treadmill (3.2 km/h, 10% slope). We used linear regression analyses (LRA) and a non-linear analysis (NLA) combining Support Vector Machines and Genetic Explanatory in 800 patients with the following resting variables: Age, gender, body mass index (BMI), the presence of diabetes (Db), minimal ankle to brachial index at rest (ABI), usual walking speed over 10 m (WS10), Number of comorbid conditions (CMC), smoking behaviour (Smo), resting heart rate (HR), pre-test glycemia (Gly) and haemoglobin (Hg), beta-blocker use (BB), and exercise-derived variables: minimal value of pulse oxymetry (Sat), resting chest tcpO2 (TcpO2-rest), decrease in chest tcpO2 during exercise (DCT), presence of buttock ischemia defined as a DROP index < -15 mmHg (Butt-I). Results: Independent variables associated to MWT, by decreasing importance in the models, were : ABI, Age, BMI, WS10m, DC-TcpO2, Smo, Butt-I, Gly, HR for the NLA, and Age, ABI, WS10; TcpO2-rest, BMI, Smo, Butt-I, HR and BB for the LRA (r=0.518; p<0.01). Gender, Db, CMC, Hb, Gly and Sat were not detected as significantly associated to MWT on treadmill with the LNA and LRA models. Testing of models against MWT over 320 new patients gave r=0.509 for LRA and 0.575 for NLA (both p<0.05). Conclusions: In addition to ABI, Age, BMI and Smo were found new variables associated to MWT : Butt-I, HR and WS10.
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